FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE

IN REPLYING, ADDRESS THE

Communicable Disease Center
Enteric Bacteriology Laboratories
P. O. Box 185
Chamblee, Georgia

March 23, 1953

3010/49 + 3012/49 are listed as group B + group C, non motiles respectively Rec'd from Ontario P.V. H. No other history.

Dr. Joshua Lederberg
Department of Genetics
University of Wisconsin
Madison 6, Wisconsin

Dear Dr. Lederberg:

Enclosed is the report on the lot of cultures mentioned in your letter of March 5. We have just started work on the last lot. The "track" came through in excellent shape. I had never noticed this sort of occurrence in any of our work, very interesting.

In our records 3012-49 is listed as nonmotile C_1 - therefore, presumably not related to 3010-49. I do not have the records at hand so I cannot say where they came from.

The results with SW 974 and 978 are rather a surprise for two reasons. First, they place the Hines V.A.H. and 5594-51 in an entirely different category than No. 157 and, second, the transference of phase variation. Perhaps this occurs more often than you thought. Would this approach the transfer of pairs of characters as in E. coli?

SW 976 is apparently an "induced" phase 2. We could not identify it but I have no serums made from changed 1,2 phases so one would not expect it to react in the serums at hand. I still am not convinced that these forms are merely "selected" (see below).

I am enclosing the protocols of the work done with SW 973, SW 958c, and SW 958c,c′.

You will note that SW 973 is right on the nose. I am glad this experiment worked so well. Note that the phases were somewhat mixed when received but after passage through absorbed serum they separated perfectly. Lack of absorption of Berlin serum by the 1,5 phases is due to slight differences in Berlin and S. miami phase 2. Note that all agglutinins for S. miami phase 2 were removed. This may be regarded as finished, I believe.

SW 958c and SW 958c, c′ are the same so far as I can tell without preparing serums from them. I believe you have been misled by the difference in susceptibility of living and formalinized suspensions to O agglutination. The Berlin serum apparently has a rather high O titer and brings down living suspensions of both SW 958 forms. As you noted,

Dr. J. Lederberg March 23, 1953

SW 958c is rough and therefore will not remove all O agglutinin for SW 958c,c′. I have absorbed relatively large amounts of Berlin serum with these forms and at first opportunity will try a number of Kunzendorf strains in them. We should then be able to tell whether more than interference is involved.

With best wishes, I am

For the Officer-in-Charge, Bacteriology Section

Sincerely yours,

Phil

PRE:mg

Philip R. Edwards, Ph. D.
Bacteriologist-in-Charge
Enteric Bacteriology Unit

Encls.

	Berlin	Minn 179(C)	Berlin abs SW958c living	Berlin abs SW958c 100°-2½ hrs	Berlin abs SW958c, c' 100°-2½ hrs.
SW 958c living	500 (O)	> 1000	<50	<50	<50
SW958 c,c' "	1000 (O)	> 1000	50	100	<50
SW961 "	>1000	<200	>1000	>1000	>1000
SW 958 c formolized	<50	>1000	<50	<50	<50
SW958 c,c' "	<50	> 1000	<50	<50	<50
SW961 "	>1000	<200	>1000	>1000	>1000
Berlin "	> 1000	<200	> 1000	> 1000	> 1000
Minn 179 "	<50	>1000	<50	<50	<50

SW973 - All from single colony cultures.

	O group	1,2*	1,5*	2	5		O group	2	5
SW973 ph 1	D	+	±	+	—	x →	D	—	+
ph 2	D	+	++	—	++	5 →	D	++	—
SW973B ph 1	D	++	±	++	—	2 →	D	—	+
ph 2	D	+	++	±	++	5 →	D	++	—
SW973C ph 1	D	++	+	++	+	2 →	D	—	++
"ph 2"	D	++	I	+	—	2 →	D	—	++

* 1-1000

	N25 (1,2)	N25 abs 973 ph 1	Berlin	Berlin abs 973 ph 2
SW973 ph 1	40,000	<100	1000	<100
ph 2	5,000	<100	40,000	<100
Penn BN25 ph 2	20,000	<100	500	<100
Berlin	1000	<100	40,000	100
Miami ph 2	2000	<50	20,000	<50

Enviel'